

Although one configuration of sinuous spring 70 is illustrated and described, other configurations may be utilized as well. For example, the sinuous spring may not extend above the side surfaces of the intermediate slat, in which case the sinuous spring is secured to the bottom of the intermediate slat. In addition, a continuous sinuous spring may extend along the length of each of the intermediate slats underneath the slats, as opposed to a series of spaced, discontinuous sinuous springs 70. As mentioned above, alternative configurations of springs as well as non-spring spacers such as foam blocks may be utilized to space the intermediate slats 28 above the intermediate rails 18 of the base 12.

Referring back to FIGS. 1 and 1A, row 24a comprises a plurality of spaced first modular springs 30 supported by one of the end rails 14 of the base. More particularly, the lower portions 34a,34b of each of the first modular springs 30 are stapled or otherwise secured to the end rail of the base, with each of the first modular springs being oriented identically. Although not shown, the opposite end rail 14 of the base 12 of the bedding or seating product 10 similarly has a row of first modular springs 30 secured thereto extending across the width of the base.

FIG. 2A illustrates one of the intermediate row 24f of the spring interior 22. Row 24f of springs comprises a pair of endmost first modular springs 30a,30a'. Each of these first modular springs 30a,30a' is secured to the one of the intermediate rails 18a of the base 12 with staples 104. Between the endmost first modular springs 30a,30a' is an intermediate slat 28a located directly above the intermediate rail 18a of the base and generally parallel thereto. However, the length of the intermediate slat 28a is less than the length of the intermediate rail 18a. Extending between the intermediate slat 28a and the intermediate rail 18a of the base are a plurality of sinuous springs 70a. The sinuous springs 70a are secured to the intermediate slat 28a and the intermediate rail 18a. The sinuous springs 70a function to hold the intermediate rail 28a in place as well as increase the resiliency of the bedding or seating product.

A plurality of spaced second modular springs 46a are secured to the intermediate slat 28a and extend upwardly therefrom. The planar upper portions 48a of the second modular springs 46a are generally coplanar with the generally planar upper portions 44a of the first modular springs 30a,30a' in order to easily secure a wire grid 106 (illustrated in FIG. 1) to the upper portions of the springs.

Referring to FIGS. 1 and 1A, the wire grid 106 comprises a plurality of longitudinally extending wires 108 intersecting with a plurality of transversely extending wires 110. The intersecting wires are surrounded with a generally rectangular border wire 112, as is conventional. Although one configuration of grid 106 is illustrated as described, other configurations of grids may be used in accordance with the present invention, and secured to the modular springs any number of ways.

Each of the rows 24b-24e is configured and oriented identically, row 24b being illustrated in detail in FIG. 2B. However, rows 24f on to the last intermediate row of the bedding or seating product (excluding the end row of first modular springs) are oriented differently than rows 24b-e. One of these rows, row 24f is illustrated in detail in FIG. 2A. Each of these rows is identical to the row 24b illustrated in FIG. 2B except rotated 180° C., that is, the orientation of the modular springs and sinuous springs is different. FIG. 2B illustrates a pair of outermost first modular springs 30b and 30b' secured to an intermediate rail 18b of the base 12. Also illustrated is an intermediate slat 28b located directly above

the intermediate rail 18b of the base. A plurality of sinuous springs 70b are located between the intermediate rail 18b of the base and the intermediate slat 28b but are oriented oppositely from those sinuous springs 70a illustrated in FIG. 2A. Similarly, FIG. 2B illustrates a plurality of second modular springs 46b which are oriented differently than the second modular springs 46a illustrated in FIG. 2A. The purpose of orienting the springs differently in the different rows is to help stabilize the grid 106 secured to the upper portions of the modular springs. However, it is within the contemplation of this invention that all of the modular springs be oriented the same way, alternate orientations every other row, or some other variation thereof.

Although FIGS. 1 and 1A illustrate the rows of springs extending transversely, the rows of springs may extend longitudinally as well. FIG. 4 illustrates a bedding or seating product 120 in which the intermediate slats 122 and intermediate rails 124 of the base 130 extend longitudinally. In this embodiment rows of first modular springs 126 are located along the side rails 128 of the base 130.

While I have described several preferred embodiments of the bedding or seating product of the present invention, persons skilled in the art will appreciate changes and modifications which may be made to the present invention without departing from the spirit of the invention of this application. For example, resilient foam blocks or other configurations of springs may be used instead of sinuous springs in order to space the intermediate slats above the intermediate rails. Similarly, other configurations of springs may be used in place of the modular springs atop the intermediate slats or on the end rails of the wooden frame. Therefore I intend to be limited only by the scope of the following claims.

I claim:

1. A bedding or seating product comprising:
a base comprising a pair of end rails, a pair of side rails
and a plurality of intermediate rails,

a plurality of intermediate slats spaced above said intermediate rails,

a plurality of spacers extending between said intermediate slats and said intermediate rails, each of said spacers being secured to one of said intermediate slats and one of said intermediate rails,

a plurality of modular springs secured to said intermediate slats and extending upwardly therefrom,

a grid secured to said modular springs, and
an upholstered covering surrounding said slats, intermediate slats, spacers, modular springs and grid.

2. A bedding or seating product comprising:

a base comprising a pair of end rails, a pair of side rails
and a plurality of intermediate rails,

a plurality of intermediate slats spaced above said intermediate rails,

a plurality of spacers extending between said intermediate slats and said intermediate rails, each of said spacers being secured to one of said intermediate slats and one of said intermediate rails,

a plurality of modular springs secured to said intermediate slats and extending upwardly therefrom,

a grid secured to said modular springs.

3. The bedding or seating product of claim 2 wherein said spacers are springs.

4. A bedding or seating product comprising:

a base comprising a pair of end rails, a pair of side rails
and a plurality of intermediate rails,

- a plurality of intermediate slats spaced above said intermediate rails,
- a plurality of sinuous springs extending between said intermediate slats and said intermediate rails, each of said sinuous springs being secured to one of said intermediate slats and one of said intermediate rails, 5
- a plurality of modular springs secured to said intermediate slats and extending upwardly therefrom,
- a grid secured to said modular springs.
- 5. The bedding or seating product of claim 2 wherein said intermediate slats are wooden.
- 6. The bedding or seating product of claim 2 wherein said base is wooden.
- 7. The bedding or seating product of claim 2 wherein said spacers are stapled to said intermediate slats and to said intermediate rails of said base. 15
- 8. A bedding or seating product comprising:
 - a base comprising a pair of transversely extending end rails, a pair of longitudinally extending side rails and a plurality intermediate rails, 20
 - a plurality of intermediate slats spaced above said intermediate rails, each of said intermediate slats being directly above and parallel one of said intermediate rails of said base, 25
 - a plurality of spacers extending between said intermediate slats and said intermediate rails,
 - a plurality of springs of a first height secured to said base and extending upwardly therefrom,
 - a plurality of springs of a second height secured to said intermediate slats and extending upwardly therefrom, said second height being less than said first height, 30
 - a grid secured to said springs.
- 9. The bedding or seating product of claim 8 wherein said spacers are sinuous springs.
- 10. The bedding or seating product of claim 8 wherein said intermediate slats are wooden.
- 11. The bedding or seating product of claim 8 wherein said base is wooden.
- 12. The bedding or seating product of claim 8 wherein said spacers are stapled to said intermediate slats and to said intermediate rails of said base. 40
- 13. A bedding or seating product comprising:
 - a base comprising a pair of end rails, a pair of side rails and a plurality of intermediate rails, 45
 - a plurality of intermediate wooden slats spaced above said intermediate rails, each of said intermediate wooden slats being directly above and parallel one of said intermediate rails,
 - a plurality of sinuous springs extending between said intermediate wooden slats and said intermediate rails,

- each of said sinuous springs being secured to one of said intermediate wooden slats and one of said intermediate rails,
- a plurality of modular springs secured to said intermediate wooden slats and extending upwardly therefrom,
- a grid secured to said modular springs.
- 14. A bedding or seating product comprising:
 - a base comprising a pair of end rails, a pair of side rails and a plurality of intermediate rails,
 - a grid spaced above said base,
 - a plurality of intermediate slats spaced above said intermediate rails of said base and below said grid,
 - a plurality of spacers extending between said intermediate slats and said intermediate rails, each of said spacers being secured to one of said intermediate slats and one of said intermediate rails,
 - a plurality of springs secured to said intermediate slats and extending between said intermediate slats and said grid.
- 15. A bedding or seating product comprising:
 - a base comprising a pair of end rails, a pair of side rails and a plurality of intermediate rails,
 - a plurality of intermediate slats spaced above said intermediate rails,
 - a plurality of sinuous springs extending between said intermediate slats and said intermediate rails, each of said sinuous springs being secured to one of said intermediate slats and one of said intermediate rails,
 - a plurality of springs secured to said intermediate slats and extending upwardly therefrom.
- 16. The product of claim 15 further comprising a grid secured to upper portions of said springs.
- 17. A bedding or seating product comprising:
 - a base comprising a pair of end rails, a pair of side rails and a plurality of intermediate rails,
 - a plurality of intermediate slats spaced above said intermediate rails,
 - a plurality of spacers extending between said intermediate slats and said intermediate rails, each of said spacers being secured to one of said intermediate slats and one of said intermediate rails,
 - a plurality of modular springs secured to said intermediate slats and extending upwardly therefrom.
- 18. The product of claim 17 further comprising a grid secured to upper portions of said modular springs.

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